SANTA MONICA BAY NATIONAL ESTUARY PROGRAM

Semi-Annual Report

October 1, 2016 – March 31, 2017

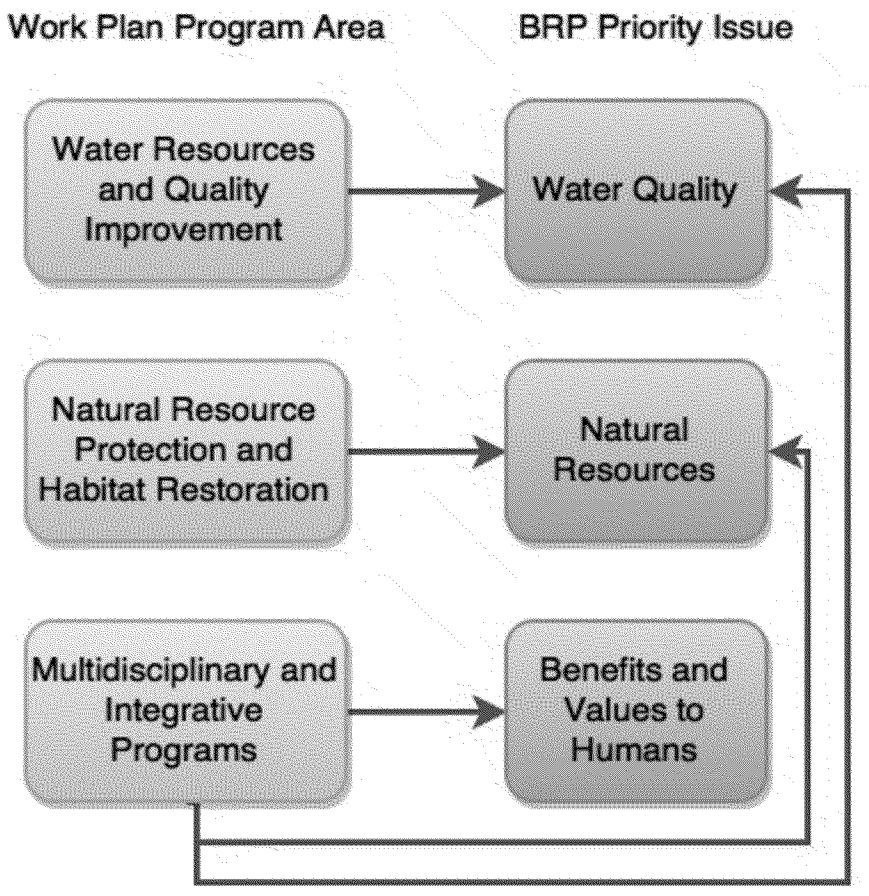
Prepared for the United States Environmental Protection Agency

Questions: where do you keep your outreach materials? I.e. how do I get a copy of them for the grant file?

Semi-Annual Report Overview and Structure

This semi-annual report outlines and provides an update for each of the FY17 Work Plan tasks for the time period October 1, 2016 through March 31, 2017. Many of the FY17 tasks continue past efforts. Each table summarizes the current status and a synthesis of updates for each task. For some tasks requiring more description or discussion, an extended narrative follows the table for that task.

The scope of this semi-annual report is broad and structured into three overarching Program Areas to match the structure of the FY17 Work Plan. The Program Area identified as Water Resources and Quality Improvement relates specifically to the BRP Priority Issue: Water Quality; the Program Area identified as Natural Resource Protection and Habitat Restoration relates specifically to the BRP Priority Issue: Natural Resources. There has also been more focus and efforts in FY17 on implementing programs that interconnect and integrate issues across traditional boundaries such as climate change and comprehensive monitoring. These interdisciplinary issues that cover a broad range of topics are categorized into the Work Plan Program Area: Multidisciplinary and Integrative Programs. The diagram below illustrates the connection between SMBNEP's FY17 Work Plan and BRP 2013 Priority Issues.



Each of the three Work Plan Program Areas (semi-annual reporting Program Areas) are further categorized into broad Goals and can be identified as 1.1, 1.2, etc. The table below illustrates each of the three Work Plan Program Areas and the nine Goals identified as priorities for FY17.

Work Plan Program Area	Work Plan Goal

1. Water Resources and Quality Improvement	1.1 Support regional water quality improvement planning and policies
	1.2 Improve water quality through pollution control and prevention
2. Natural Resources and Habitat Protection	2.1 Support natural resource protection policies and programs
	2.2 Restore wetlands and streams
	2.3 Restore coastal bluffs, dunes, and sandy beaches
	2.4 Restore intertidal and subtidal habitats
3. Multidisciplinary and Integrative Programs	3.1 Promote climate change vulnerability assessment and adaptation
	3.2 Conduct public outreach
	3.3 Support planning, monitoring, and organizational management

The Work Plan Goals are further divided into Objectives (at the level of 1.1a, 1.1b, etc.). Each of these Objectives contain a series of tasks identified within a table that will take strides towards reaching the Objective. This semi-annual report provides an update on each of the FY17 Work Plan tasks for all Objectives. The FY17 Work Plan Goals and Objectives are both cross-referenced within this document to the associated BRP Goal or Objective. For additional details at the goal or objective level, refer to the final FY17 Work Plan. Additionally, some tasks are of a larger scope or have had significant achievements within this reporting period, and as such have a more detailed narrative summary after the table of tasks in each section.

1. Water Resources and Quality Improvement

Tasks and activities in this section of the semi-annual report are intended to advance the goals, objectives, and milestones that address water quality-related issues, as laid out in Priority Issue 1, Water Quality, of the BRP. For narrative details on each Objective and task, refer to the final FY17 Work Plan.

1.1 Support regional water quality improvement planning and policies

This FY17 Work Plan objective is tied to BRP Goal 1: Improve water quality through enhancement of current regulatory framework and collaborative, integrated watershed wide planning and implementation, and Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.1a Implement storm water pollution control BMP funded through Prop. 84 bond and other grant programs; BRP 1.1				
Oversee pollution control BMPs funded through Prop. 84 bond grants	SMBRC	Lead	Ongoing	SMBRC and State Water Resources Control Board (SWRCB) staff currently developing new grant agreements; Project implementation June 2017 – 2019
Facilitate availability of Prop. 1 funding for WMP and EWMP projects	SMBRC, TBF	Facilitate	Ongoing	Continued dialogue with state agencies; participated on Urban Rivers and Urban Greening TAC which included four meetings and multiple statewide site visits
1.1b Promote and participate in integrated watershed-wide water quality improvement planning and implementation; BRP 1.5, 4.6				
Support efforts to increase funding for water resiliency	SMBRC, TBF	Support	Ongoing	Continued to monitor the progress of the LA County Drought Resiliency Work Plan and funding mechanism report
Participate in sub-region Steering Committees	SMBRC	Participate	Ongoing	See Appendix C for list of groups and meeting frequency
Participate in IRWMP leadership group and provide technical support	SMBRC	Participate	Ongoing	Continued to attend Leadership Committee meetings and sub-regional group meetings; quarterly meetings; reelected as open space representative on the Leadership Committee in March 2017

Summary Narratives

Prop. 84 New Project Solicitation: Based on review by the Clean Beach Santa Monica Bay Task Force, a Recommended Projects List (RPL) was developed and submitted to the Executive Committee on September 15, 2016. The Executive Committee approved submitting the RPL to the Governing Board which approved the list at its October 20, 2016 meeting. The RPL includes five projects totaling $9 million in funding through Proposition 84 via the SWRCB. These projects will assist responsible agencies in meeting the requirements of the new Los Angeles County Municipal Separate Storm Sewer System Permit (MS4 Permit). The five projects recommended for funding are described below:

1. *Culver Boulevard Realignment and Stormwater Infiltration/Retention Regional Project* (City of Culver City) – The proposed system will include a belowground infiltration/retention basin situated underneath the Culver Blvd. median, capable of capturing/treating the 85th percentile, 24-hour design storm runoff from a drainage area of 800 acres and capture 100% of the dry weather flow from its drainage area.
2. *Westwood Neighborhood Greenway Project* (City of Los Angeles) – The project proposes to divert and capture dry-weather flow from a stormdrain that captures runoff from 2,400 acres of drainage area into two parallel bioswales to improve water quality in the receiving waters (Sepulveda Channel, Ballona Estuary and Santa Monica Bay Beaches). The project is expected to capture 67,000 to 340,000 gallons per day of urban runoff. During storm events, this 5-acre project will capture the "first flush" of the storm from a 2,400-acre drainage area.
3. *Santa Monica Bay Catch Basin Insert Project* (City of Racho Palos Verdes) – The project retrofits/installs Connector Pipe Screen (CPS) units in as many as 1,368 catch basins in three cities in the Palos Verdes Peninsula Watershed. They include the Cities of Rancho Palos Verdes, Palos Verdes Estates, and Rolling Hills Estates. The portion of the Peninsula WMG that drains to Santa Monica Bay consists of approximately 14 sq. miles.
4. *Ladera Park Water Quality Enhancement Project* (County of Los Angeles Department of Public Works) – Through a combination of pre-treatment, retention, and infiltration facilities, the Project will treat then store and infiltrate the 85th percentile 24-hour storm volume of 5.1 acre-feet of stormwater runoff and all the non-stormwater runoff from the 110-acre tributary area.
5. *Gates Canyon Park Project* (County of Los Angeles Department of Public Works) – The project is located at an 8.2 acre park space located within the upper Malibu Creek Watershed. The Project will divert runoff from an existing storm drain to a proposed underground detention gallery and capture up to the 85th percentile storm from 105 acres of single family residential property adjacent to this project, and provide infiltration as well as water storage capacity through a gallery below the park's open space. The stored water will be utilized to irrigate Gates Canyon Park during the dry season.

Applicants, the SWRCB, and SMBRC staff are currently drafting grant agreements for final approval by the SWRCB.

1.2 Improve water quality through pollution control and prevention

This FY17 Work Plan objective is tied to BRP Goal 2: Improve water quality through pollution prevention and source control.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.2a Implement green infrastructure and LID projects; BRP 2.1				
Seek new partnership and funding opportunities for new rain garden and other LID projects	TBF, SMBRC	Lead	Ongoing	Obtained funding from LADWP for water and energy conservation outreach; obtained funding from SWRCB for hydrocarbon constituent monitoring at the Culver City Rain Garden
Facilitation of storm water monitoring and monitoring of LID effectiveness	TBF, SMBRC	Facilitate	Ongoing	Continued stormwater constituent and infiltration monitoring of four storm events at the Culver City Rain Garden; continued partnership with LMU to analyze data; preliminary results presented at February GB meeting and March TAC meeting
1.2b Implement the Boater Education Program; BRP 2.4				
Conduct pumpout monitoring	SMBRA, TBF	Lead	Ongoing	Conducted two quarterly monitoring events; completed the Pumpout Report 2016: Southern California Clean Vessel Act Pumpout Performance Report (likely to be publically released in April 2017)
Implement Honey Pot Day (HPD)	SMBRA, TBF	Lead	Ongoing	Program was implemented June to August 2016; mailed Boater Kits and thank you letters to HPD participants in October; planning for next boating season to commence in April/May 2017
Attend and promote boating outreach events	SMBRA, TBF	Lead	Ongoing	Produced 3,500 Southern California Tide Calendars for 2017; Changing Tide Winter newsletter completed and posted on website November 2016; Changing Tide Spring 2017 newsletter coordination continues; continued to update the Southern California Boater's Guide (to be released as an interactive PDF); distributed 118

				Boater Kits and collected 72 new Changing Tide subscriptions at the Los Angeles Boat Show (2/27-2/28)
Coordinate Dockwalker Volunteer Program	SMBRA, TBF	Lead	Ongoing	Scheduled 2017 trainings; continued to work with DBW on planning; issued press release for Spring trainings; collected 2 Dockwalker testimonial videos from volunteers; updated training presentation to include advanced volunteer materials; and coordinated a TAC conference call
Seek funding for used oil recycling	TBF	Lead	Complete	CalRecycle no longer offers Used Oil Nonprofit Competitive Grants
Conduct copper TMDL outreach	TBF	Support	Pending	Met with LA County Department of Beaches and Harbors to discuss proposed tasks and continued contract development with the County and LARWQCB; final contract to be executed and work will begin April 2017
1.2c Implement the Clean Bay Restaurant Certification Program; BRP 2.2, 2.5, and 14.2				
Implementation of the Clean Bay Certified program	SMBRC, TBF	Lead	Ongoing	Continued monthly program meetings; continued semi-monthly online promotion; acquired grants from SoCalGas and Patagonia; developed questions and conducted restaurant staff interviews of six establishments in Culver City and two in Rolling Hills Estates; secured 300 faucet aerators from the West Basin's MWD Cash for Kitchens program for distribution to certified restaurants; organized a beach cleanup for city staff and inspectors on 11/19; created a Clean Bay Certified program info postcard
Support restaurant inspections by Cities	TBF	Support	Ongoing	Continued coordination of efforts and program components for the eleven participating cities; developed the Clean Bay Certified

				Inspection Handbook in English and Spanish

Summary Narratives

Water and Energy Conservation (LADWP grant – new partnership and funding opportunities): In 2016, TBF was awarded a Los Angeles Department of Water and Power (LADWP) School-Based Community Organizations for Educational Partnership Program Grant. The overarching objective of this project is to promote energy, water, and natural gas conservation throughout LAUSD by implementing innovative educational opportunities and additional outreach strategies. Several educational and outreach materials were developed during this reporting period, including a 12-minute educational video, a "Jeopardy"-style classroom game, three high-quality water, energy, and climate change infographics, a take-home worksheet package that includes thematic crossword puzzles, word searches, home water and energy assessments, and motivations to learn and conserve by completing the exercises to qualify for a prize-drawing in April 2017. Additionally, an interactive story-map was developed to showcase Los Angeles' water infrastructure and history. An energy story-map is also in development. The classroom presentations were successfully conducted in March 2017 and were received with great enthusiasm. A conservation social media campaign was initiated and will continue to the end of the grant in June 2017. In April, all of the materials will be posted on TBF's website and will be available for free download.

Clean Bay Restaurant Certification Program: With funding from the SoCalGas Environmental Champions Grant program, TBF will implement the "Table to Farm Composting for Clean Air" pilot project. Through this program, TBF will partner with local community groups and schools in the City of Inglewood (i.e. Social Justice Learning Institute, Inglewood Environmental Charter Middle School, LA Compost). TBF will work with these groups to install and manage community composting sites and work with restaurants on source reduction, organics recovery, and food rescue. Participating restaurants will be expected to deliver their pre-consumer organic scraps to a local composting hub(s), to be managed by program partners. TBF also received funding from Patagonia to create Clean Bay Certified Toolkits that will support certified restaurants in their implementation of practices such as water conservation, patron engagement, use of durable serviceware (vs. single use), etc. Each Toolkit will include a Clean Bay Certified Manual, low flow faucet aerator, emergency spill kit for oil and grease, storm drain labeling stencils, and signs/table tents to encourage ocean-minded behavior.

2. *Natural Resource Protection and Habitat Restoration*

Tasks and activities in this section of the Annual Work Plan are intended to advance the goals, objectives, and milestones that address natural resources-related issues, as laid out in Priority Issue 2, Natural Resources, of the BRP. The BRP addresses the natural resources-related issues first by supporting better information gathering and implementation of more effective protection policies, regulations, and management programs (Goal 4), and by laying out specific steps and projects needed for protection and restoration for each of the major habitats in the Bay (Goals 7–10). For narrative details on each Objective and task, refer to the final FY17 Work Plan.

2.1 Support natural resource protection policies and programs

This FY17 Work Plan objective is tied to BRP Goal 4: Create/support policies and programs to protect natural resources and Goal 13: Increase public access to beaches and open space.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.1a Promote marine ecosystem protection; BRP 4.2, 4.3, 4.4, 11.4				
Implement ocean vessel aerial monitoring project	TBF	Lead	Ongoing	Four survey flights completed; nine stakeholder outreach presentations given; 2016 project report completed; manuscript publication in process
Participate in MPA Collaborative	TBF	Promote	Ongoing	Attended meeting on March 16, 2017
Promote sustainable fishery management	TBF	Promote	Ongoing	Continued ongoing communications with CDFW
Expand acoustic telemetry network	TBF	Participate	Ongoing	Receivers purchased; deployment scheduled for May-June 2017
Support MDR Youth Fishing Program	TBF	Support	Ongoing	MDR Anglers were awarded SCC's Explore the Coast grant to take 600 children on fishing trips in 2017; assisted MDR Anglers with intern and volunteer support for fishing trips; submitted letter of intent for grant to fund additional trips and environmental education for at-risk youth
2.1b Support stream protection and policies; BRP 4.1				
Promote creation and adoption of stream protection ordinances	TBF	Promote	Ongoing	Opportunistically participated in conversations with other groups to facilitate progress such as Heal the Bay and

				Women of Water

Summary Narratives

Ocean Vessel Aerial Monitoring: Since 2010, TBF has partnered with LightHawk to collect data on recreational and commercial vessel distribution and activity relative to the South Coast Marine Protected Areas (MPA) network. This work includes data from 2008 through 2016 collected via aerial surveys in an effort to understand changes in the use of different habitats by fishermen as a result of MPA implementation. Distribution models of these data have been created and are being refined for publication in a scientific journal(s). This project informs decision makers, enforcement officials, resource managers and other stakeholders regarding types, distribution and activities of vessels in Southern California coastal waters.

A new GPS-GIS system was developed and put into service during the past six months. The hardware includes a GPS antennae, cables, and a computer tablet. The interface is larger and easier to use in flight contributing to the accuracy of data collection.

An annual report was finalized and sent to the grantor supporting this effort. That report will be altered to serve a more general audience and will be made public on TBF's website in April of 2017. The publication of a manuscript for a scientific journal is in process at this time. TBF and Dr. Amanda Zellmer at Occidental College have contributed to this manuscript. TBF expects to continue quarterly surveys thorough 2017 to collect data and describe any emerging trends in the distribution, action, or type of vessels operating along the mainland coast of southern California.

MPA Collaborative: TBF continued to update and advance the goals of the Los Angeles County MPA Collaborative, concentrating on communication strategies and outreach for the general public. In March, TBF presented updates on the Ocean Vessel Aerial Monitoring project at two meetings in San Pedro at the Cabrillo Marine Aquarium and at the Wishtoyo Chumash Village in Malibu, on 21 and 22 March 2017, respectively. The meetings were organized by the California Department of Fish and Wildlife, the Ocean Protection Council, and Ocean Science Trust, to share and promote the *State of the California South Coast Summary of Findings from Baseline Monitoring of Marine protected Areas, 2011-2015*.

Acoustic Telemetry Network: Four acoustic receivers were purchased by TBF to improve the coverage of the Southern California Acoustic Telemetry Network and inform the SMBNEP of the movements, positions and permanence of great white sharks and giant black sea bass. Both of these species are ecologically significant, protected by state and federal regulations and inadvertently or purposefully targeted by fishermen. Data generated by this expansion of the network will improve protection and understanding for these species.

The receivers were acquired in the late fall of 2016. To date the receivers have not been installed due to concerns of loss due to high seas and a need for further coordination among project partners (e.g. Los Angeles County Lifeguards, TBF, and the Shark Lab at California State University Long Beach). Deployment of the receivers is scheduled for May-June of 2017.

2.2 Restore wetlands and streams

This FY17 Work Plan objective is tied to BRP Goal 7: Restore wetlands, streams, and riparian zones.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.2a Facilitate restoration of priority wetlands; BRP 7.1, 7.2, 7.5-7.8				
Implement Ballona Reserve community stewardship and invasive species removal project	TBF	Lead	Completed / Ongoing	Completed first phase of restoration project (0.88 acres) including 15 tons (>200 cy) of iceplant removal and over 500 hours of volunteer support; submitted final report; continued ongoing monitoring which will continue for several years, but not as part of the WRP grant
Assist CDFW with the draft EIR/S review for the Ballona Reserve	TBF	Participate	Ongoing	Continued to provide technical assistance to CDFW's Project Management Team and DEIR consultants; DEIR release scheduled for mid-2017
Conduct public outreach about Ballona Reserve on behalf of CDFW	TBF	Participate	Ongoing	Continued to provide updates to media and public at the request of CDFW; ongoing outreach in association with iceplant removal efforts
Conduct Malibu Lagoon post-restoration maintenance and monitoring	SMBRA, TBF	Lead	Ongoing	Maintenance and volunteer events occurred once monthly; completed year 4 monitoring; began drafting annual monitoring report due in June 2017. (project partner DPR)
Implement Level 3 regional wetland monitoring program	TBF	Lead	Ongoing	Workshop in fall 2016; group Principal Investigator meetings in January and March 2017; beginning data consolidation; developed Tier 1 Metadata forms; drafted semi-annual report
Facilitate restoration of other coastal lagoons in northern Santa Monica Bay	TBF	Facilitate	Ongoing	Opportunistically participated in conversations with other groups and lead agencies such as DPR, LA County, and RCDSMM
2.2b Facilitate stream restoration and fish barrier removal; BRP 7.3, 7.4				

Conduct Stone Canyon Creek maintenance	TBF	Lead	Ongoing	Conducted monthly volunteer restoration events
Conduct mudsnail surveys in the Northern Bay watershed	SMBRC, TBF	Lead	Ongoing	No activity this reporting period; next survey planned for summer 2017
Facilitate projects to control crayfish and other invasive species in Santa Monica Mountains watersheds	SMBRC, TBF	Participate	Ongoing	Opportunistic communications are ongoing
Complete Arroyo Sequit fish barrier removal project	TBF	Participate	Ongoing	Major project construction completed fall 2016; ongoing vegetation installation and maintenance; documented migrating steelhead in January. (Project Lead DPR)
Facilitate completion of Rindge Dam removal feasibility study	SMBRC, TBF	Facilitate	Ongoing	Draft Feasibility Study EIR/EIS released in February; public comment period completed 27 March; SMBRC staff submitted letter and attended public meeting on 1 March. (Project leads DPR, ACOE)
Liberty Canyon Wildlife Crossing	TBF	Participate	Ongoing	Installation of fencing, removal of vegetation, planting of native vegetation, planning and permit development, and permit acquisition. (Project partners Caltrans, RCDSMM, MRCA)
Participate in restoration of lower Topanga Creek	SMBRC, TBF	Participate	Ongoing	Opportunistic communications are ongoing, (Partners DPR, RCDSMM, CADFW)
Identify funding sources and promote stream restoration and fish barrier removal projects	SMBRC, TBF	Promote	Ongoing	Encouraged agencies to submit applications at Urban Rivers (2) and Urban Greening (2) workshops; helped secure funding for Las Virgenes Creek Restoration Phase II through Urban Rivers Program; opportunistic communications and funding searches are ongoing; explored ideas for Proposition 1 funding

Summary Narratives

Ballona Community Stewardship Restoration Project: TBF submitted the final report which completed the first phase of the iceplant removal project at the Ballona Wetlands Ecological Reserve (Reserve), funded by the Southern California Wetland Recovery Project's Community Wetland Restoration Grant Program in partnership with California Department of Fish and Wildlife (CDFW) and Friends of Ballona Wetlands. The goal of this important interim stewardship project is to improve the ecological condition within the Reserve and study how invasive iceplant removal efforts help native plants and animals. This report serves as the final product for the first project phase, specifically the "Ballona Wetlands Restoration through Community Partnership" project, funded by the Southern California Wetlands Recovery Project's Community Wetland Restoration Grant Program (Grant #2015-001).

With help from community and student volunteers who devoted over 500 hours to this effort, TBF removed over 15 tons of iceplant (more than 200 cubic yards) from the restoration area. In total, 0.88 acres were treated with restoration actions from September to December 2016. In addition to participating in restoration efforts, volunteers were provided an educational introduction to the Reserve. In summary, both restoration methods (tarping and hand-removal) were successful at removing iceplant and engaging the community and local school groups, and no wildlife were harmed as part of this restoration project. Results from this project supported unanimous consensus from the scientific community consulted prior to implementation of this project that the tarping method is a successful, low-impact, and cost-effective eradication method for iceplant, and it does not negatively impact native flora and fauna. Ongoing monitoring continues to determine the long-term success of both removal techniques.

Malibu Lagoon: In March 2017, TBF completed the fourth year of site-wide monitoring at the Malibu Lagoon Restoration and Enhancement project, including the full suite of required post-restoration monitoring parameters such as water quality and circulation, sediment quality, vegetation, algae, birds, fish, benthic invertebrates, CRAM (California Rapid Assessment Method), and photo point surveys. A comprehensive 4-year monitoring report, including comparative evaluations of pre- and post-restoration data, is currently being drafted and will be submitted to CA State Parks in June of 2017. The project is currently meeting or exceeding required success criteria, and data show a consistent increase in vegetation cover over time and a substantial increase in CRAM score (wetland condition assessment) over time. The water quality, circulation, and dissolved oxygen have all also improved, post-restoration. The fish and bird communities are doing well, and the lagoon appears to be highly functional based on the monitoring metrics and identified success criteria. Detailed Year 4 data will be available in the annual report and posted on TBF's website once complete and reviewed by CA State Parks.

Regional Wetland Monitoring Program: Monitoring and assessment strategies developed by the State of California and USEPA universally call for coordinated and consistent approaches to wetland monitoring and assessment. Intensive methods provide information on ecological function, are more diagnostic of restoration performance and regulatory compliance, and are important for the validation of rapid assessment methods. The goal of this project is to contribute to the standardization of site-intensive wetland monitoring methods through consolidating and analyzing large-scale regional data sets. Significant progress occurred during this semi-annual reporting period through three partner program meetings held at SCCWRP facilities in Costa Mesa and the resulting program development. Data consolidation began through the development of a Tier 1 Metadata wetland inventory online tool with a geospatial component to track what monitoring protocols have been implemented at which wetlands in California over time. Further progress was made through early analyses conducted on three

specific types of site-intensive data: vegetation cover, water quality parameters collected through data loggers, and invertebrates collected using a variety of methods and specific protocols.

Arroyo Sequit Creek Barrier Removals: TBF participated in the planning, coordination, and fund leveraging for the removal of two Arizona Crossings and one small check dam within Arroyo Sequit Creek. The removal of these crossings and check dam will provide unobstructed passage for the federally endangered southern steelhead trout to historic spawning grounds. The removals will also allow for free sediment movement and lateral transport along Arroyo Sequit Creek, which will reduce scour to the stream channel and banks and reduce overall sediment loading in the system. The project will also remove water contact and the associated pollutants from vehicles, which will now be elevated well above the water level in the stream. The new, wider bridges will also minimize conflicts between pedestrians and motor vehicles that use the road simultaneously; this will provide additional safety to park visitors.

The check dam was removed over 11 days in August and September of 2014 by TBF, CA State Parks, and the Camarillo Conservation Corps. The next step of the project replaced both Arizona Crossings with new bridges that restored the natural hydrology and sediment flows to the stream. The bridge project began on 24 August, 2015 and is currently underway. The upper crossing was demolished and a new free-span bridge was installed during the summer/fall of 2015. The lower crossing demolished, and a new free-span bridge was installed in September 2016. The in-stream work was completed in October of 2016. Irrigation systems have been installed on the banks around the lower crossing, with vegetation planting expected to be completed in April 2017. The project will open up an additional 4.5 miles of steelhead habitat in the Santa Monica Mountains which is 22.5% of TBF's overall 20-mile goal. The project is being implemented in partnership with California Department of Parks and Recreation, California Conservation Corps, and Resource Conservation District of the Santa Monica Mountains.

Due to rainfall accumulation and winter storms at the end of 2016, lower Arroyo Sequit began flowing again this year. In late January, steelhead were documented migrating upstream thanks to the removal of the instream barriers.

Rindge Dam Removal Feasibility Study: (Local Sponsor for this project is DPR) The project was suspended in February 2015 by the ACOEto conduct an internal review of the project progress, address funding needs, and to update agreements between DPRand the ACOE . These issues were resolved and the project is once again active. A meeting was held on 1 September, 2016; ACOE and DPR to updated the Technical Advisory Committee on the status of the study including alternatives and options, next steps and scheduling. The Draft Feasibility Study EIR/EIS was completed in January 2017. In February and March 2017, the document underwent public review (comment period ended 27 March) and is currently undergoing independent peer review.

2.3 Restore coastal bluffs, dunes, and sandy beaches

This FY17 Work Plan objective is tied to BRP Goal 8: Restore coastal bluffs, dunes, and sandy beaches.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.3a Restore coastal dune and bluff habitats; BRP 8.1				
Conduct monthly volunteer restoration events at LAX Dunes	TBF	Lead	Ongoing	Conducted monthly restoration events funded by SCC; completed quarterly summary reports
Explore partnership with LAWA for 48-acre LAX Dunes restoration	SMBRA, TBF	Lead	Ongoing	Finalized MOU with City of LA (LAWA), pending signatures; grant to begin in full next semi-annual reporting period
Coordinate Coastal Clean-up Day at LAX Dunes	TBF	Lead	Ongoing	Began planning discussions; further planning efforts in next semi-annual reporting period; funding provided by SCC
2.3b Protect and restore sandy beach habitats; BRP 8.2				
Implement the Santa Monica beach restoration pilot project	TBF	Lead	Ongoing	Completed installation of sand fence and seeded with native dune species; continued ongoing communications with City of Santa Monica; continued ongoing monitoring and outreach; completed and released annual report in December, 2016
Facilitate standardized sandy beach monitoring	SMBRC, TBF	Facilitate	Ongoing	Opportunistically searched for funding; ongoing communications through regional stakeholder groups such as the Beach Ecology Coalition (attended and presented at annual meeting in Feb)
Conduct the "Healthy Beaches" project	TBF	Participate	Ongoing	Six LMU students conducting ongoing research throughout this semi-annual reporting period; three reports will be completed in May 2017

Summary Narratives

LAX Dunes Restoration: In January 2017, the MOU and scope of work for the 48-acre dune restoration project was approved by the LAWA Board of Commissioners. This agreement commits $250,000 over the next three years to the restoration, monitoring, and management of the site. Work on this project will begin at the end of March or early April 2017, as soon as the signatures are finalized.

In addition, work continues through the State Coastal Conservancy's Explore the Coast Grant that is being used for the Coastal Dune Community Stewardship Project, an educational and hands-on restoration program at the LAX Dunes. During this time period, a quarterly report was compiled, and six events were held.

Santa Monica Beach Restoration Pilot Project: This Pilot Project, conducted in partnership with the City of Santa Monica, is restoring three acres of sandy coastal habitats on the beaches of Santa Monica to bring back a healthy, diverse coastal plant and wildlife community. The project will evaluate increased protection for our coastal infrastructure and residences from sea level rise and erosion, while also providing a vital refuge for invertebrates, birds, and rare coastal vegetation species. During this reporting period significant pre-implementation outreach occurred via media, presentations, and site visit tours, including outreach for the permitting process through the CA Coastal Commission (CDP # 5-16-0632).

In December 2016, the project was officially launched with the installation of a low-lying sand fence and seeding of native dune vegetation. Site checks and ongoing scientific monitoring initially was conducted weekly and now continues biweekly. Monitoring data are collected in partnership with LMU students and UCSB researchers to evaluate the effectiveness of restored natural ecology and functions such as protection of coastal infrastructure from sea level rise and erosion. Also in December 2016, the first annual project update report was completed and submitted to the Annenberg Metabolic Studio and US EPA, two of the project funders. Notable project achievements during this time period included the germination and growth of over ten thousand native dune seedlings and the use of the site by several federally endangered Western Snowy Plover.

Healthy Beaches Project: This research project, in partnership with LMU and facilitated by undergraduate and graduate students and several LMU faculty members, continued through both fall 2016 and spring 2017 semesters. Research projects included sand transport, avifauna community and human use surveys, wrack and trash surveys, topographic and elevation surveys, and the beginning of a site-suitability analysis for future beach restoration projects. Many of the results were presented at LMU's Spring Research Symposium on 25 March, 2017, and will be presented at the Southern California Academy of Sciences Annual Meeting on 28 April, 2017.

2.4 Restore rocky intertidal and subtidal habitats

This FY17 Work Plan objective is tied to BRP Goal 9: Restore rocky intertidal and subtidal habitats.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.4a Promote protection of rocky intertidal habitats; BRP 9.2				
Promote protection of rocky intertidal habitats	TBF	Promote	Ongoing	Continued ongoing communications with collaborators; interviewed and selected an undergraduate intern from LMU to support rocky intertidal research in the next semi-annual report period
2.4b Restore and enhance rocky reef habitat; BRP 9.1				
Implement the Rocky Reef / Kelp Forest Restoration Project	TBF	Lead	Ongoing	Four acres restored October 2016 to March 2017; 40 acres restored for the total project to date; average urchin density reduced from 25.9/m^2 to 1.5/m^2; several public presentations given
2.4c Reintroduce and restore abalone; BRP 9.3				
Restore green abalone	TBF	Lead	Ongoing	Quarterly monitoring of outplanting location continued; conducted tissue sampling for genetic analysis; collected wild broodstock
Restore white abalone	TBF	Lead	Ongoing	Construction of aquaculture facility complete; conducted four red abalone spawning experiments; collected wild broodstock

Summary Narratives

Palos Verdes Kelp Forest Restoration Project: Teams of restoration divers (SCUBA) have been clearing the ocean floor of excess sea urchins, thereby reducing herbivory and allowing for the natural recruitment and development of the giant kelp community. During the reporting period of 1 October, 2016 through 31 March, 2017, four acres of reef have been cleared of excess urchins. The average urchin density has been reduced from 25.9/m^2 to 1.5/m^2 across the total 40 acres restored since the beginning of the project in July 2013. Early results from this work are already apparent, with the development of a variety of macroalgae occurring on the reefs in all sites as well as increases in fish species richness and biomass. In some locales, giant kelp (*Macrocystis pyrifera*) has reached impressive lengths exceeding twenty five feet and creating a canopy at the surface of the ocean. Presentations of the progress of this ongoing project were made at the Hannon Library Loyola Marymount University

Faculty Pub Night on 24 January, 2017 and at a meeting of the Water Division of US EPA on 1 February, 2017. An abstract and submission to speak at the upcoming annual meeting of the Southern California Academy of Sciences was completed and accepted in March 2017.

Weather conditions continued to be favorable this winter allowing monitoring and restoration teams to dive more consistently. Additional restoration blocks will be identified, pre-monitored, and cleared during the next period. During October/November of 2016, Vantuna Research Group divers completed subtidal surveys at six long-term CRANE sites on Palos Verdes Peninsula. Additionally, VRG and TBF jointly completed intertidal surveys at two locations at PV. VRG and TBF performed analyses for project reporting and began manuscript preparation.

Restore Green Abalone: Quarterly non-invasive monitoring surveys continued at the green abalone outplanting site. An invasive monitoring survey was conducted on 10 March, 2017, in which all nonconsolidated elements of the substrate are lifted or pushed aside to allow for all surfaces of the rocks and the interstices they create to be visually examined to comprehensively survey the area for cryptic individuals. During this survey, 20 of the 45 observed green abalone had tentacles removed for genetic analysis to determine parentage, e.g. to distinguish between naturally occurring and outplanted abalone at this restoration site. In January 2017, ten wild green abalone were collected off Catalina Island and brought into captivity to support method development for spawning green abalone. The refinement of these methods will support efforts by TBF, NOAA, NMFS, and CDFW to produce large numbers of green abalone to restore them to the rocky reef systems of southern California.

Restore White Abalone: Red abalone are used as a proxy for white abalone for restoration technique development. This is in response to the species' shared range, depth, bottom type, food preference and the endangered status of the white abalone. To increase the infrastructure and develop methods for white abalone recovery, TBF completed the construction of its Abalone Laboratory at the Southern California Marine Institute in June 2016. The space serves as a wet lab and hatchery for abalone rearing, experimentation, and long-term housing of broodstock. The facility is a registered aquaculturist and has been certified as "sabellid free" by CDFW. Four captive red abalone spawning events were conducted in the lab: November, December, 2016 and January, February, 2017. Animals spawned during all events, and two events had successful fertilization in December 2016 and February 2017. Captive abalone will be spawned each month to refine techniques in spawning, larval settling, and culturing of juveniles. A broodstock collection permit was acquired, and the first wild broodstock, i.e. 10 red and 10 green abalone, were collected in December 2016 and January 2017. After a six month health assessment, an additional 30 individuals of each species will be collected and housed in the facility for spawning and outplanting trials. TBF also applied for additional state and federal funding for further abalone research. Decisions for all applications are pending.

3. *Multidisciplinary and Integrative Programs*

Due to their multidisciplinary and integrative nature, Objectives and tasks in this section of the semi-annual report are tied to and provide essential support for implementation of all goals, objectives, and milestones of the BRP including information gathering and dissemination, fund raising, and organizational management. For narrative details on each Objective and task, refer to the final FY17 Work Plan.

3.1 Promote climate change adaptation

This FY17 Work Plan objective is tied to BRP Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.1a Conduct climate change vulnerability assessment and policy improvements; BRP 4.5				
Implement BRP revisions consistent with vulnerability assessment	SMBRC, TBF	Lead	Ongoing	Phase 1 vulnerability assessment completed in September 2016; Phase 2 adaptation action plan development began in early 2018; TAC provided input on roadmap and directions at the March 2017 meeting
Participate in AdaptLA project	SMBRC, TBF	Participate	Ongoing	Participated in webinars and workshops, including one held on 22 February to disseminate USGS final CosMos modeling results
Promote "softscape" measures for adapting to climate change impacts	SMBRC, TBF	Promote	Ongoing	Conducted ongoing dialogue throughout reporting period, including meeting with LA County and City of Malibu to explore dune restoration opportunities at Zuma Beach and Point Dume
3.1b Conduct research on local impacts of climate change; BRP 4.5 and ALL				
Implement kelp forest hydrodynamics study	TBF	Participate	Ongoing	Deployed sensors summer 2016; continued quarterly checks/download; targeted completion date: Sept 2018
Monitor ocean acidification	SMBRC, TBF	Participate	Ongoing	Sensor deployment completed in January 2017; calibrated, downloaded, and maintained sensors (ongoing monthly)

Summary Narratives

Conduct Climate Action Planning for BRP Revision: In FY16, with support from SMBRC, TBF was awarded an EPA grant to conduct a broad, risk-based, climate change vulnerability assessment of the actions and milestones in the BRP. The vulnerability assessment was completed in September 2016, and identified strengths and weaknesses of existing milestones and objectives to manage and adapt to the impacts of climate change. Specific tasks included developing a literature review of existing applicable models for six different climate change stressors: warmer temperatures, warmer waters, sea level rise, increased drought, increased storminess, ocean acidification. Next, a broad set of risks were identified for each BRP objective and milestone, a risk matrix framework based on the "USEPA's Being Prepared for Climate Change Workbook" was developed by a panel of expert climate scientists. The last step applied the risk matrix to each BRP objective with results reviewed by expert scientists, and finally, produced data visualization graphs to easily display the complex data analyses.

Beginning in FY17 and continuing through FY18, SMBRC and TBF will review the subsequent steps recommended by the "USEPA's Being Prepared for Climate Change Workbook", which focuses on developing a risk-based action plan including BRP revision recommendations based on the results of the vulnerability assessment. The results of this exercise will support the planned BRP revision process, scheduled for completion by 2019.

Kelp Forest Hydrodynamic Study: This research project in partnership with UC Davis Bodega Marine Lab will help to inform how kelp forests influence current patterns, wave velocity, and sediment transport off the coast of the Palos Verdes Peninsula. TBF's kelp forest restoration sites make ideal study areas, allowing instruments to measure physical, chemical, and biological data before the presence of kelp in an urchin barren, and after the presence of kelp when restoration work is complete.

Pre-study site monitoring is currently in progress and will continue throughout the duration of oceanographic sensor sampling period. Bathymetry, substrate type, and rugosity data have been collected for the entire study area. Initial kelp presence/absence surveys have been completed, and further presence/absence surveys will continue throughout the sensor sampling period to quantify changes in kelp forest densities throughout the study. Pressure sensors are being used to measure changes in wave height to explore the effects of kelp on wave attenuation. Three SeaBird26 Seagauge Wave and Tide Recorders (SBE26) have been deployed in a line perpendicular to the shore, spanning inside and outside the kelp habitat. Seven months of SBE26 data have been collected and the sensors are currently on their sixth deployment. Open Wave Height Loggers (OWHLs) are still in the field test and calibration stage. Once the calibration stage is complete, OWHLs will be placed along the sensor transect to improve spatial and temporal resolution of the wave height data (the SBE26s record pressure for 20 days at a time, while the OWHLs record pressure continuously). One unit has been field tested and calibrated with the SBE26s.

Three Acoustic Doppler Current Profilers (ADCPs) were deployed during the previous reporting period. These instruments measure water current velocities, spanning from the benthos to the surface, using sound waves that are scattered back from particles in the water column. The ADCPs have collected four months of data. Battery replacement and data download occurs once every three and a half months to optimize battery usage and time in the field. Temperature loggers were also deployed alongside the ADCPs to measure vertical stratification of the water column, which plays a key role in nutrient supply and circulation within a kelp forest. Five months of temperature data have been collected and processed. Temperature loggers have been redeployed and will continue to collect data throughout the duration of the oceanographic sensor deployments.

In conjunction with the hydrodynamic study, monthly water sampling is conducted with the support of undergraduate researchers from UCLA's Institute of the Environment. They are studying how kelp

forests influence ocean chemistry to determine if kelp forests serve as refugia from ocean acidification.

3.2 Conduct public outreach and increase collaborations

This FY17 Work Plan objective is tied to all the BRP Goals through one or more elements of communication as part of outreach efforts. Specifically, Goals 2, 6, and 14 are directly facilitated by various communication strategies.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.2a Create and manage communications; BRP – ALL				
Conduct press and media communications	SMBRC, TBF	Lead	Ongoing	Released two press releases, 17 media items published; responded to media questions as asked
Publish newsletters and SMBNEP outreach materials	SMBRC, TBF	Lead	Ongoing	Released annual SMBNEP report; released two quarterly Baywire newsletters
Maintain websites	SMBRC, TBF	Lead	Ongoing	Updated TBF website bi-monthly; updated SMBRC website as needed.
Promote social media communications	SMBRC, TBF	Lead	Ongoing	Semi-weekly posts on FB, Twitter and Instagram
Attend conferences	TBF	Participate	Ongoing	Two staff attended and participated in the ANEP Tech Transfer Conference in December 2016
3.2b Coordinate the internship and volunteer program; BRP Goals 6, 7, 8, 9				
Implement the internship and volunteer program	TBF	Lead	Ongoing	Continued monthly coordination meetings and ongoing student recruitment; conducted four volunteer events monthly; released call for LMU student applications for summer internships; interviewed and chose finalist interns (6)
3.2c Participate in and provide technical support to stakeholder groups; BRP – ALL				
Participate in stakeholder groups involved in BRP implementation	SMBRC, TBF	Participate	Ongoing	Ongoing throughout the work plan time period; see Appendix C for frequency
Participate in PV Shelf and FCEC risk	SMBRC	Participate	Ongoing	No FCEC and technical information exchange group meetings were held during this

communication activities				reporting period; EPA plans to hold both meetings in April 2017
3.2d Oversee the Public Involvement and Education (PIE) mini-grants program; BRP – ALL				
Raise funding from local sponsors and initiate a new round of PIE program	TBF	Lead	Pending	No funding opportunities emerged during this reporting period; effort to seek new funding opportunities and grant applications will continue

Summary Narratives

Press and Media Communications: SMBRC and TBF continue efforts to reach out and generate local, regional, and national media coverage in various forms. Two TBF press releases were written and distributed, with seventeen media pieces delivered, including print and online articles, and a video story.

SMBNEP Annual Report and Baywire: SMBNEP's 2016 annual report (http://www.santamonicabay.org/wp-content/uploads/2017/02/SMBNEP_Annual_Report_2016_FINALweb.pdf) was released in February 2017, including distribution and posting on TBF's website as part of general outreach. The Report features SMBNEP description, several highlighted projects, financials, list of Boards and staff. Press releases and individual pitches to reporters are ongoing. The electronic Baywire newsletter was published and distributed in November and in March (http://www.smbrc.ca.gov/news_events/newsletters.shtml).

Social Media and Website: Social media continues to be one form of generating local, regional, and national outreach and engagement, highlighting projects, field work, earned media, volunteer opportunities, and related campaigns (i.e. ANEP) using educational videos, project-related images, and articles. Social media for TBF includes Instagram, Facebook (now at 2,738 Likes, 100 added in the last six months), Twitter, YouTube, and Flickr. The website was reorganized and updated in November to more accurately reflect the SMBNEP's programs and products, including more dedicated focus on Climate Change. The website offers information and connectivity through home page updates, Twitter feed, and updates to events, project pages, reports and publications, and includes a regularly updated Media Center.

Internship Program: The internship/volunteer program continued to provide educational and hands-on opportunities for students and the community. Internship opportunities included: Ballona Community Iceplant Removal Project, Culver City Rain Garden, LAX Dunes Preserve, Malibu Lagoon Restoration and Enhancement Project, Stone Canyon Creek Restoration, LMU Rain Garden events, other restoration events, and various LMU Center for Urban Resilience (CURes) and Seaver College of Science and Engineering projects. Student interns and volunteers come from local universities and high schools such as LMU, California State University Los Angeles, Pepperdine University, UCLA, USC, Santa Monica College, Marymount High School, Culver City High School, and El Segundo High School. At least four events were coordinated monthly.

Additionally, TBF continued discussions with LMU regarding a more formalized student internship program for the summer and other ways to engage faculty. TBF will host six paid summer interns who will work on various ongoing restoration and research projects, with the culmination of their efforts turned into research papers and presentations to the university. During this reporting period, a request

for applications was distributed widely within LMU's Seaver College, 24 applications were received, eight interviews were conducted, and the final six interns were chosen. It was a very competitive process with many qualified applications received.

3.3 Support planning, monitoring, and organizational management

This FY17 Work Plan objective is tied to all BRP Goals.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3a Seek and increase funding for BRP implementation; BRP – ALL				
Seek grant funding for implementation of specific BRP objectives and milestones	SMBRA, TBF	Lead	Ongoing	During this reporting period, several new grants were awarded, including LADWP, Clean Vessel Education, Table-to-Farm, and LAWA; see individual task summaries for additional details
3.3b Support comprehensive monitoring of Bay health; BRP 4.7, 10.1 and ALL				
Refine indicators and improve data collection mechanisms for SotB Report	SMBRC, TBF	Lead	Ongoing	Presented to TAC and discussed a plan to update the Bay Comprehensive Monitoring Program (at March 2017 meeting); ongoing work will address data gaps identified during the development of the 2015 SotB Report
Design and implement pilot fish larvae survey and pilot deep reef survey	SMBRC, TBF	Participate	Ongoing	Existing pelagic monitoring data evaluation completed by partner agencies (LACSD, City of LA); study of the feasibility of ichthyoplankton meta-barcoding for routine monitoring by the same partner agencies is ongoing, estimated completion date: June 2017
Assess offshore eelgrass beds in Santa Monica Bay	TBF	Facilitate	Ongoing	Began building the new ROV; ongoing communications with other stakeholder groups such as Morro Bay NEP and SFEP; met with EPA Region 9 and others for eelgrass and OA collaboration
Incorporate comprehensive monitoring program into	SMBRC, TBF	Participate	Ongoing	Ongoing based on permit renewal schedule and applicability of permit related monitoring to Annual Work Plan

NPDES permits				and Bay Restoration Plan Goals. (Permits issued by LARWQCB)
3.3c Support organizational management; BRP – ALL				
Track BRP implementation progress through semi-annual reporting	SMBRC, TBF	Lead	Ongoing	Produced semi-annual report for the April-September 2016 period
Track BRP implementation progress through annual GPRA reporting	SMBRC, TBF	Lead	Ongoing	Tracking leverage funding and habitat acreages continued; will complete and submit GPRA report by September 1, 2017
Support SMBRC GB meetings	SMBRC	Lead	Ongoing	Meets bi-monthly. Held meetings on 20 October, 2016, 15 December, 2016 and 16 February, 2017
Support SMBRC EC meetings	SMBRC	Lead	Ongoing	Meets bi-monthly. Held meetings on 17 November, 2016, 19 January, 2017 and 16 March, 2017
Support SMBRC TAC meetings	SMBRC	Lead	Ongoing	Meets quarterly. Held meetings on 07 December, 2016 and 16 March, 2017
Support SMBRC WAC meetings	SMBRC	Lead	Ongoing	Meets annually to review / contribute to work plan. Held a meeting on 9 February, 2017
Support SMBRA board meetings	SMBRA	Lead	Ongoing	Meets quarterly or as needed. Held a meeting on 17 November, 2016
Support TBF board meetings	TBF	Lead	Ongoing	Meets annually or as needed. Held meetings on 30 November, 2016 and 22 February, 2017
Conduct general management and reporting activities	SMBRC, SMBRA, TBF	Lead	Ongoing	Continued FY18 Work Plan drafting; GB review ongoing in March; comments to be received by April GB meeting